

The Salton Sea

Update

State Salton Sea Advisory Committee

April 27, 2004



Caveats

- **DRAFT report**
- **Outdoor Recreation Task Force Input**
- **Congressional, Other Input**
- **Scientific, Technical Input**
- **CEQA Steps to Follow**
- **How Fits w/i State Process**
- **REPORT: www.saltonsea.ca.gov**

Outline

- **Background**
- **Preferred Project**
 - Concept Review
 - Technical Feasibility
 - Cost Estimates
 - Financing Strategy
 - Phasing Strategy
- **Next Steps**
 - Substance
 - Process

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Restoration Planning History

- **Four decades of studies**
- **1969 – 1974**
 - Federal/State recon. investigation
 - Federal/State feasibility report
- **1993 – Salton Sea Authority formed**
- **1996 – Alternatives report**
 - 54 alternatives considered
 - Evaluation Criteria Developed/Ranked
- **1998 – Salton Sea Restoration Act**



Recent Planning History

■ 2000

- Pre-appraisal alternatives report (39 alts)
- Draft EIS (6 alts)
- Strategic Science Plan

■ NEPA/CEQA

- Programmatic Draft EIS/EIR, 2000

Recent Planning History

- **2001 – 2003**
 - Alternative refinement
 - Assessment of possible reduced inflows
- **January 2003**
 - Department of Interior Status Report (6 salinity alts & 3 salinity and elevation alts)



Background

- 40 Years of Studies
- Frustration-No “Preferred Project”
- One Year Ago:
 - Get In Driver’s Seat
 - Reviewed Transfer/Smaller Sea Solutions

Why Smaller Sea Concepts?

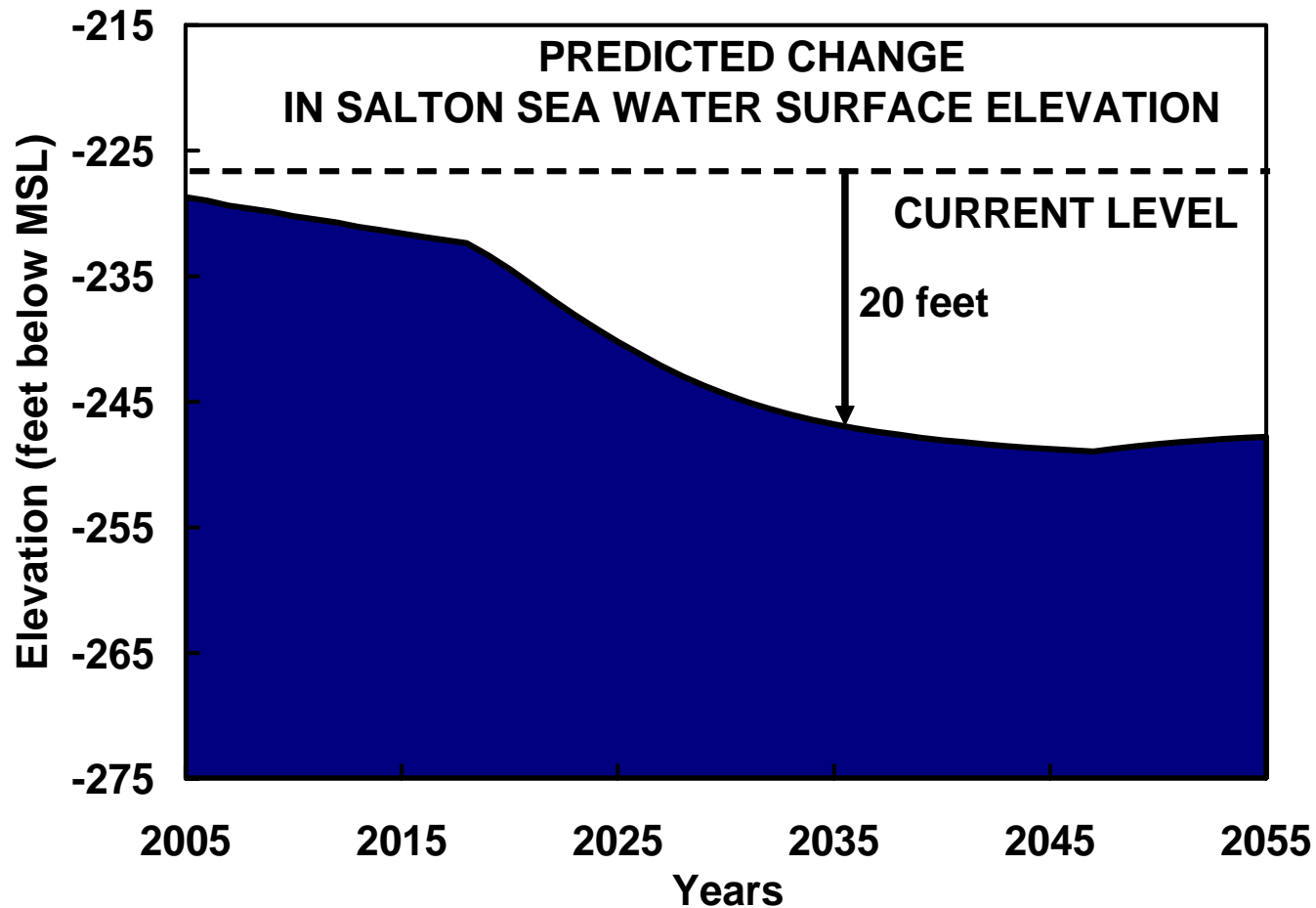
Why Smaller Sea Concepts?

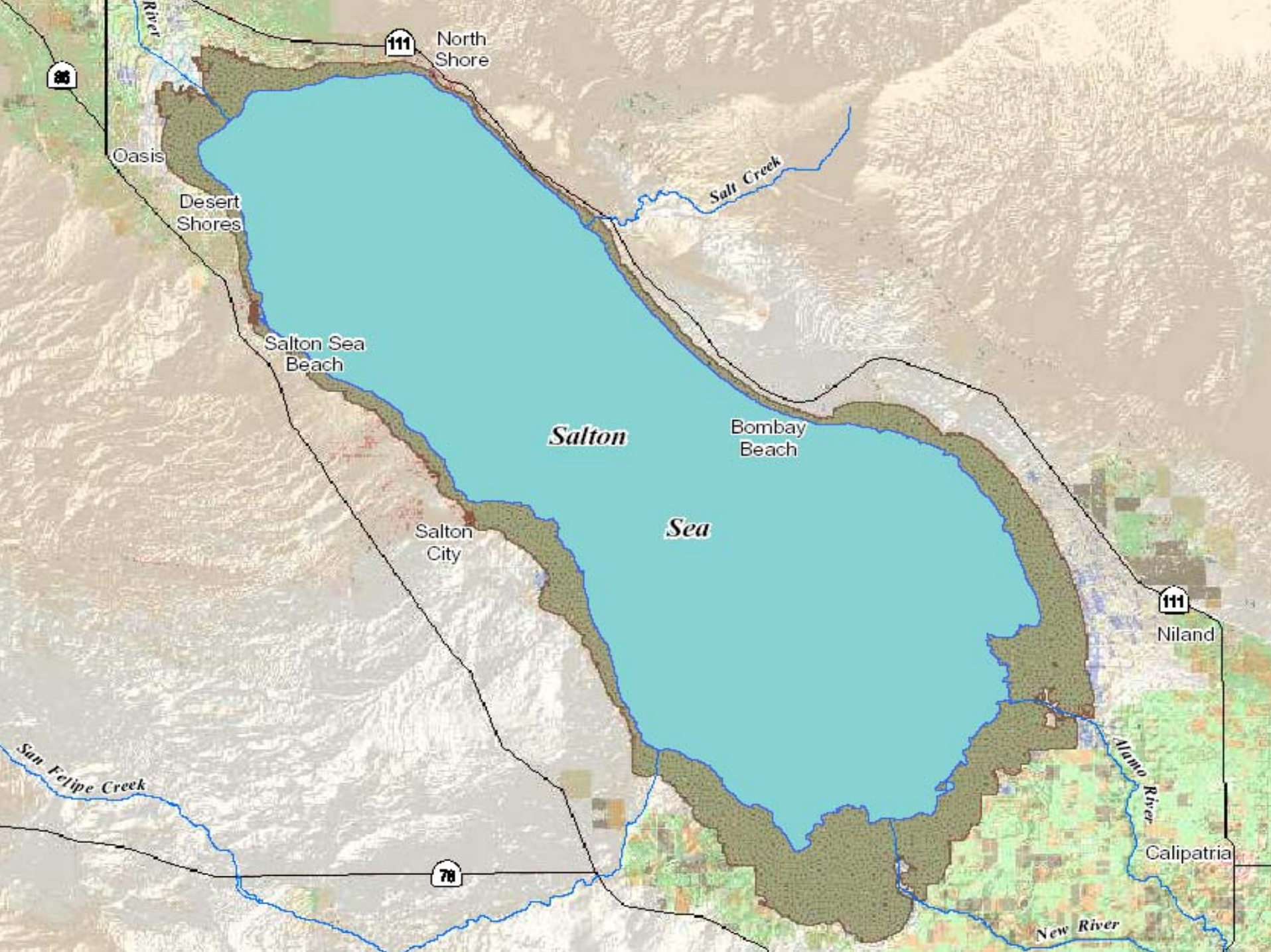
A. Water Transfers

California Service Areas



Elevation Trend: No Action





111

North
Shore

86

Oasis

Desert
Shores

Salt Creek

Salton Sea
Beach

Salton

Bombay
Beach

Sea

Salton
City

111

Niland

San Felipe Creek

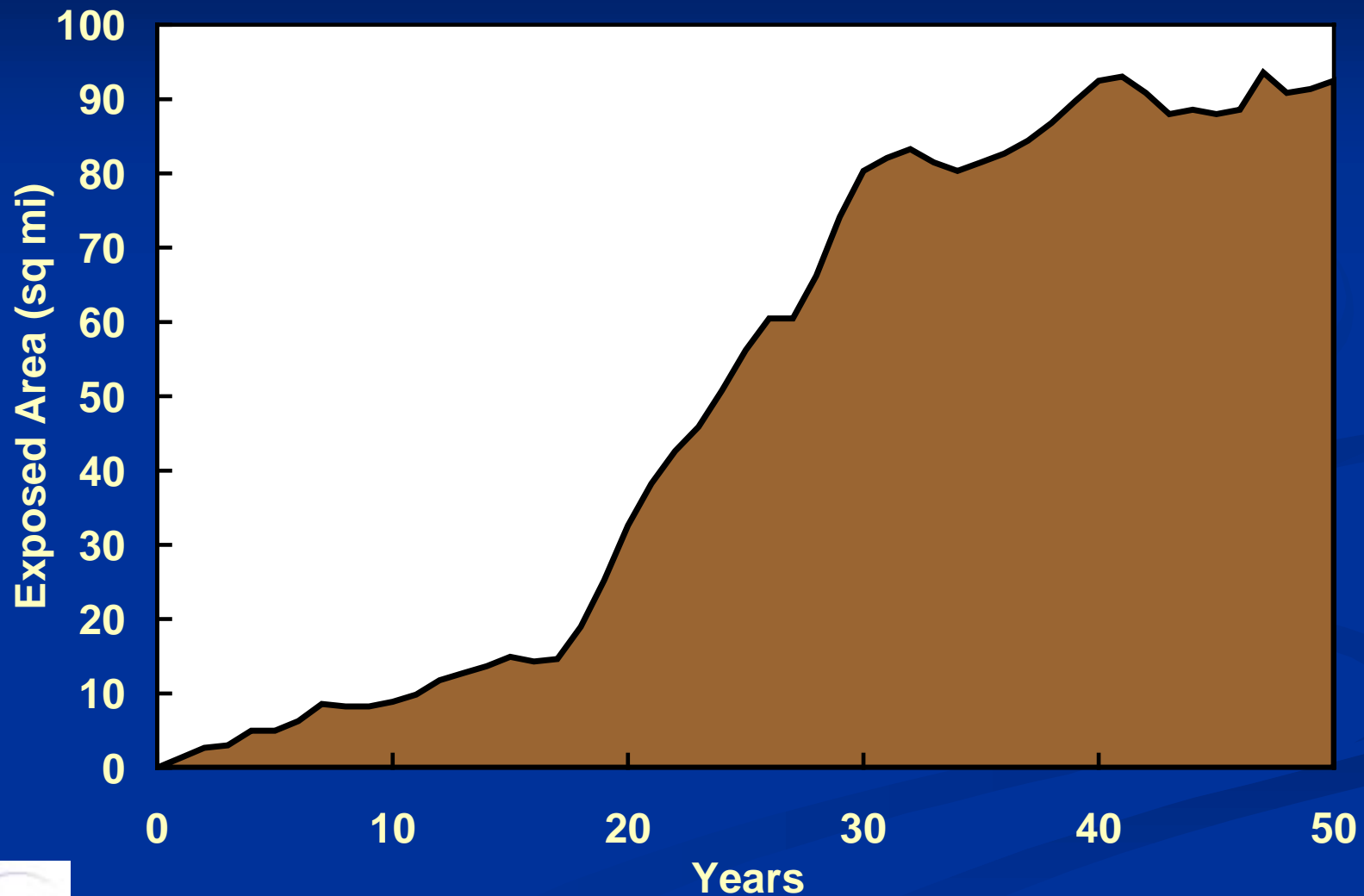
78

Alamo
River

Calipatria

New River

Exposed Sediments





Proposed Project (300KAFY) - Visual Simulation at Salton Sea Beach (water level at -250 ft msl)



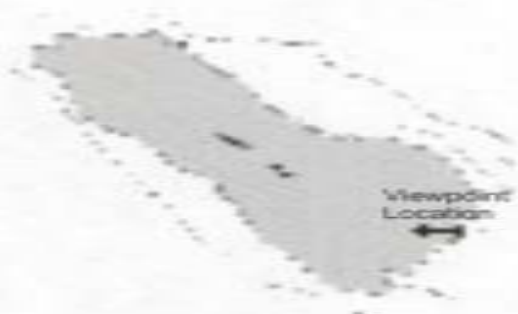
The conceptual visual simulations show the Salton Sea in the year 2077. Data sources: University of Redlands, 1999; DOI, 1999; Reclamation, 1999.

Figure 3.11-5a
Visual Simulations
 IID Water Conservation
 and Transfer Project
 Draft EIR/EIS

CH2MHILL



Proposed Project (300KAFY) - Visual Simulation at Red Hill Marina County Park (water level at -250 ft msl)



The conceptual visual simulations show the Salton Sea in the year 2077. Data sources: University of Redlands, 1999; DOI, 1999; Reclamation, 1999.

Figure 3.11-5d
Visual Simulations
IID Water Conservation
and Transfer Project
Draft EIR/EIS

CH2MHILL



Proposed Project (300KAFY) - Visual Simulation at Bombay Beach (water level at -250 ft msl)



The conceptual visual simulations show the Salton Sea in the year 2077. Data sources: University of Redlands, 1999; DOI, 1999; Reclamation, 1999.

Figure 3.11-5g
Visual Simulations
 IID Water Conservation
 and Transfer Project
 Draft EIR/EIS

CH2MHILL



Proposed Project (300KAFY) - Conceptual Visual Simulation at Sneaker Beach (water level at -250 ft msl)

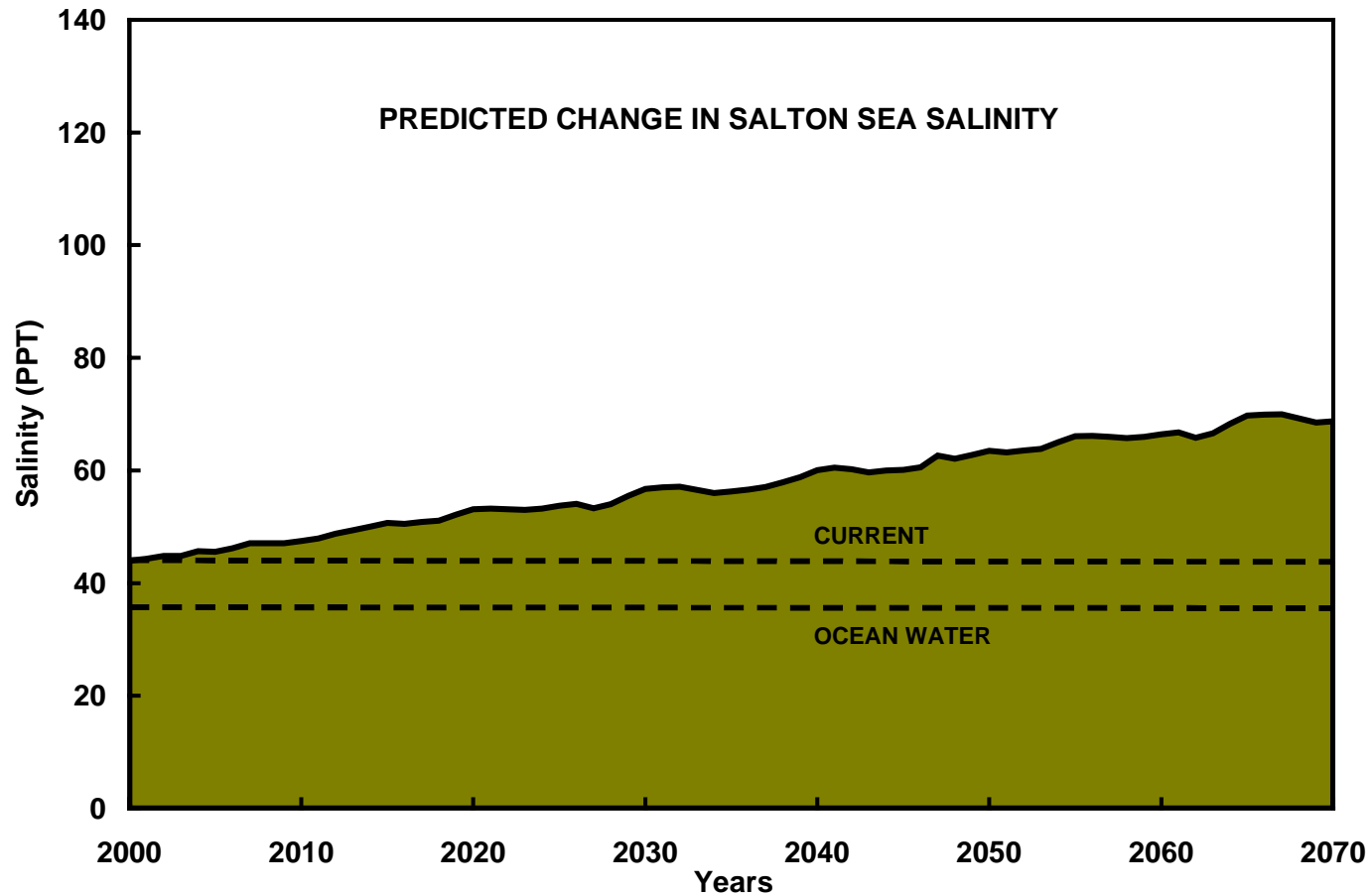


The conceptual visual simulations show the Salton Sea in the year 2077. Data sources: University of Redlands, 1999; DOI, 1999; Reclamation, 1999.

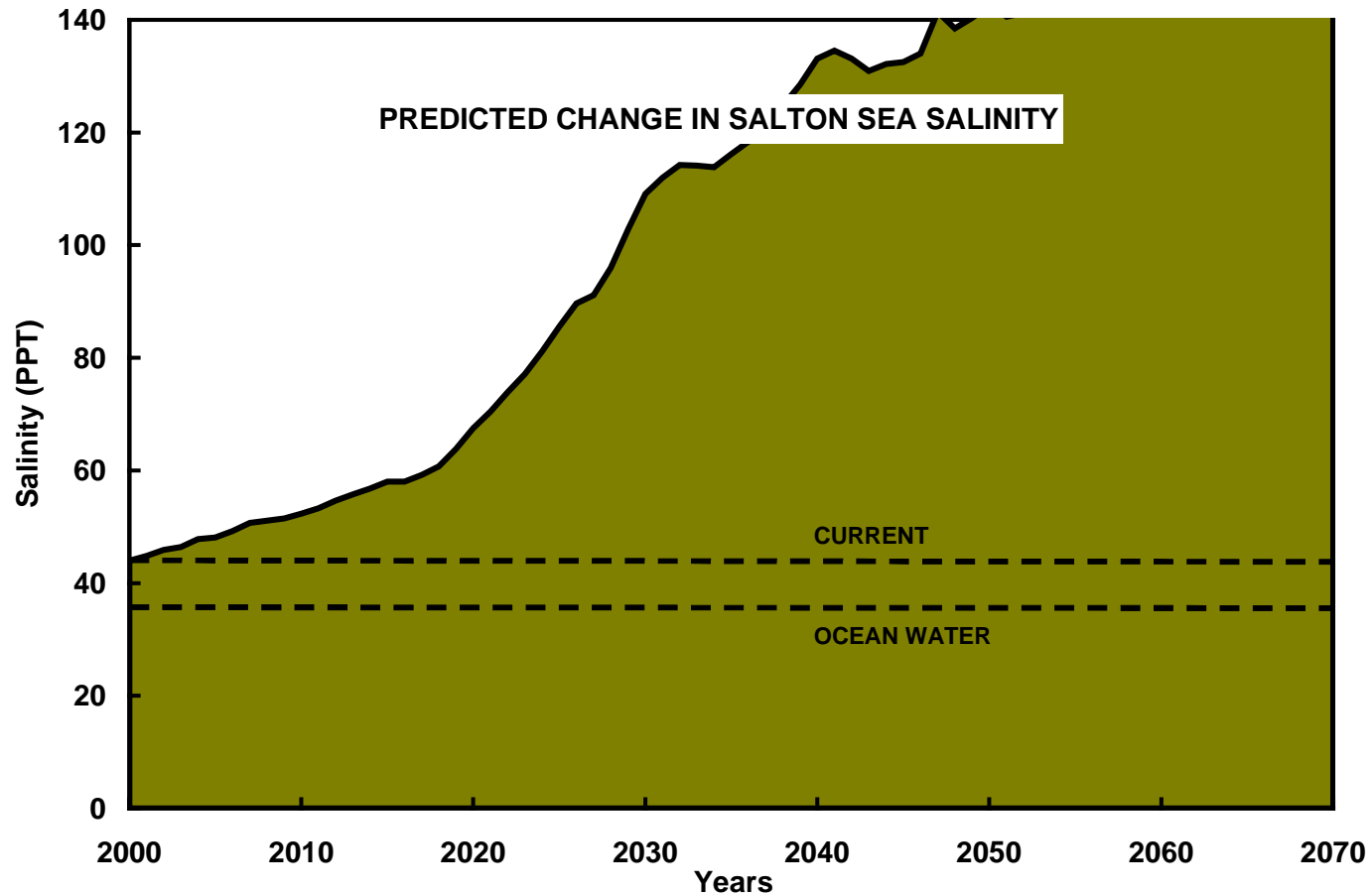
Figure 3.11-5j
Visual Simulations
 IID Water Conservation
 and Transfer Project
 Draft EIR/EIS

CH2MHILL

“Old” Salinity Trend



“New” Salinity Trend



Impacts

- Biological
 - Speeding decline
- Air Quality
 - PM 10
 - Odors



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Goals & Objectives

■ Goals From Extensive Public Input & Federal Law:

- Ag Repository
- Reduce Salinity
- Stabilize Elevation
- Create Healthy Fish Wildlife Habitat
- Enhance Economic & Recreation Potential

Goals & Objectives

■ Objectives (Used as Eval Criteria)

- Ag Repository
- Provide Large Marine Lake w/ Stable Elevation
- Improve Water Quality-Salinity
- Improve Water Quality-Nutrients
- Maintain and Improve Habitat
- Achieve Water Quality/Habitat Objectives Quickly
- Respond to Inflow Changes
- Increase Recreation & Economic Potential
- Address Air Quality Issues
- Provide High Safety Rating/Low Risk of Failure
- Overcome Institutional/Permitting Barriers
- Reasonable Cost/High Probability of Financing

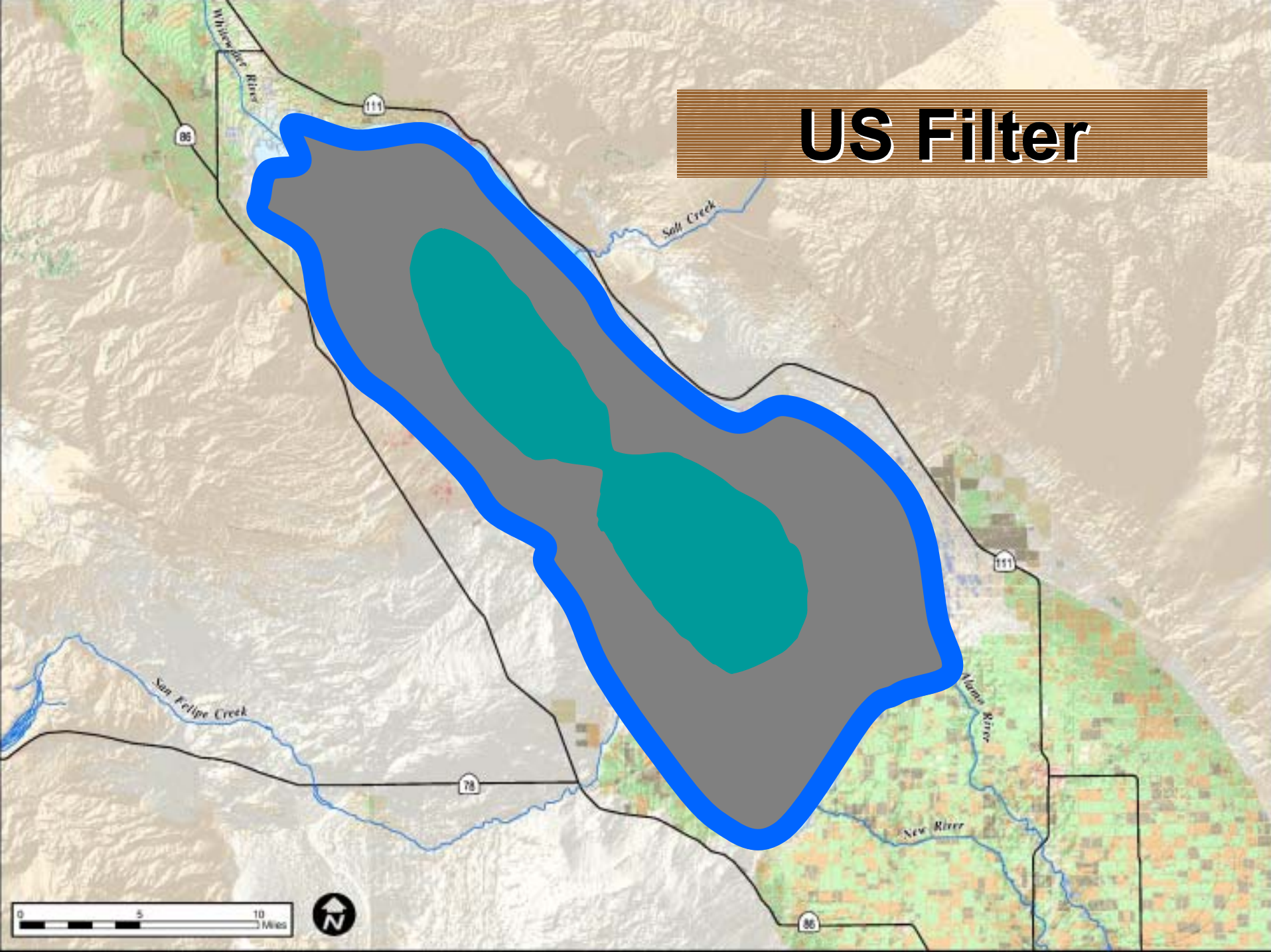
How to Restore?

- Many Reached the Same Conclusion:

How to Restore?

- Make Sea Smaller

US Filter



Congressional, Public Interest

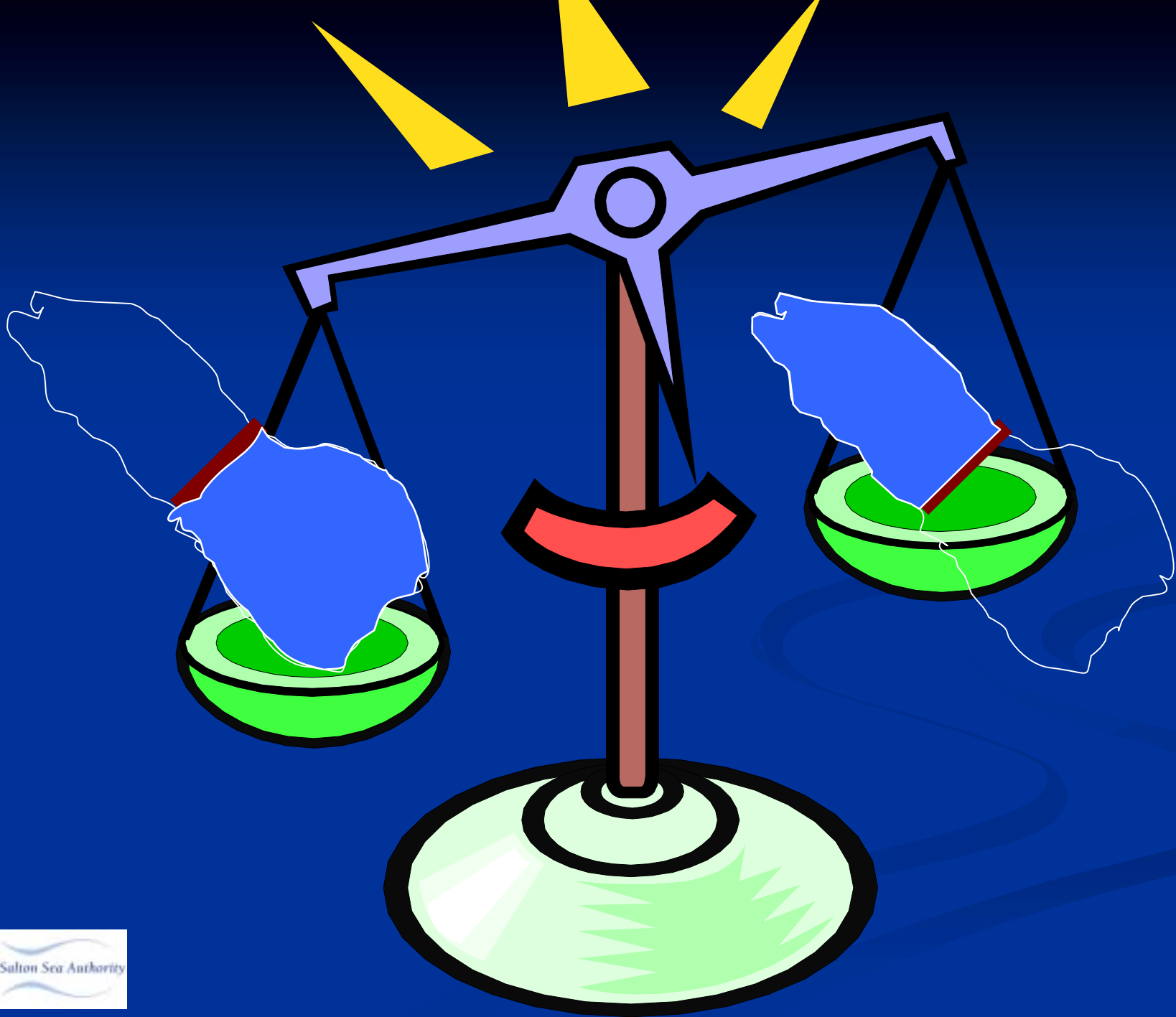
- **Congresswoman Mary Bono, Others**
 - Interesting Ideas, How to Improve Them?

What is the Most Cost Effective & Best Way To Make Sea Smaller?

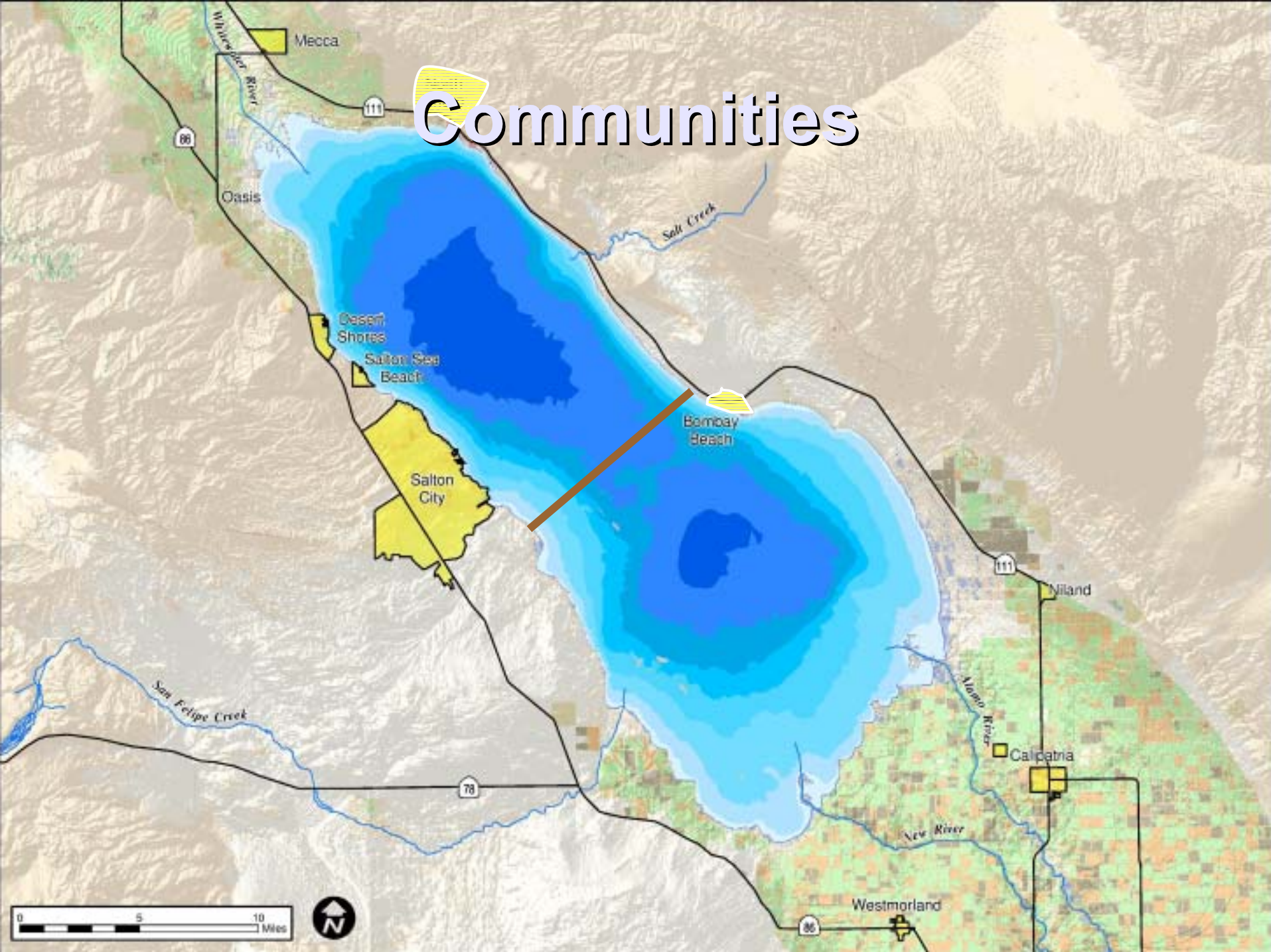
- Evaluated 4 Concepts
 - North Lake, w/ Elevation Control
 - South Lake, w/ Elevation Control
 - South Lake, w/o Elevation Control
 - No Deep Water Fishery



Which Side for Deep Water Lake?



Communities

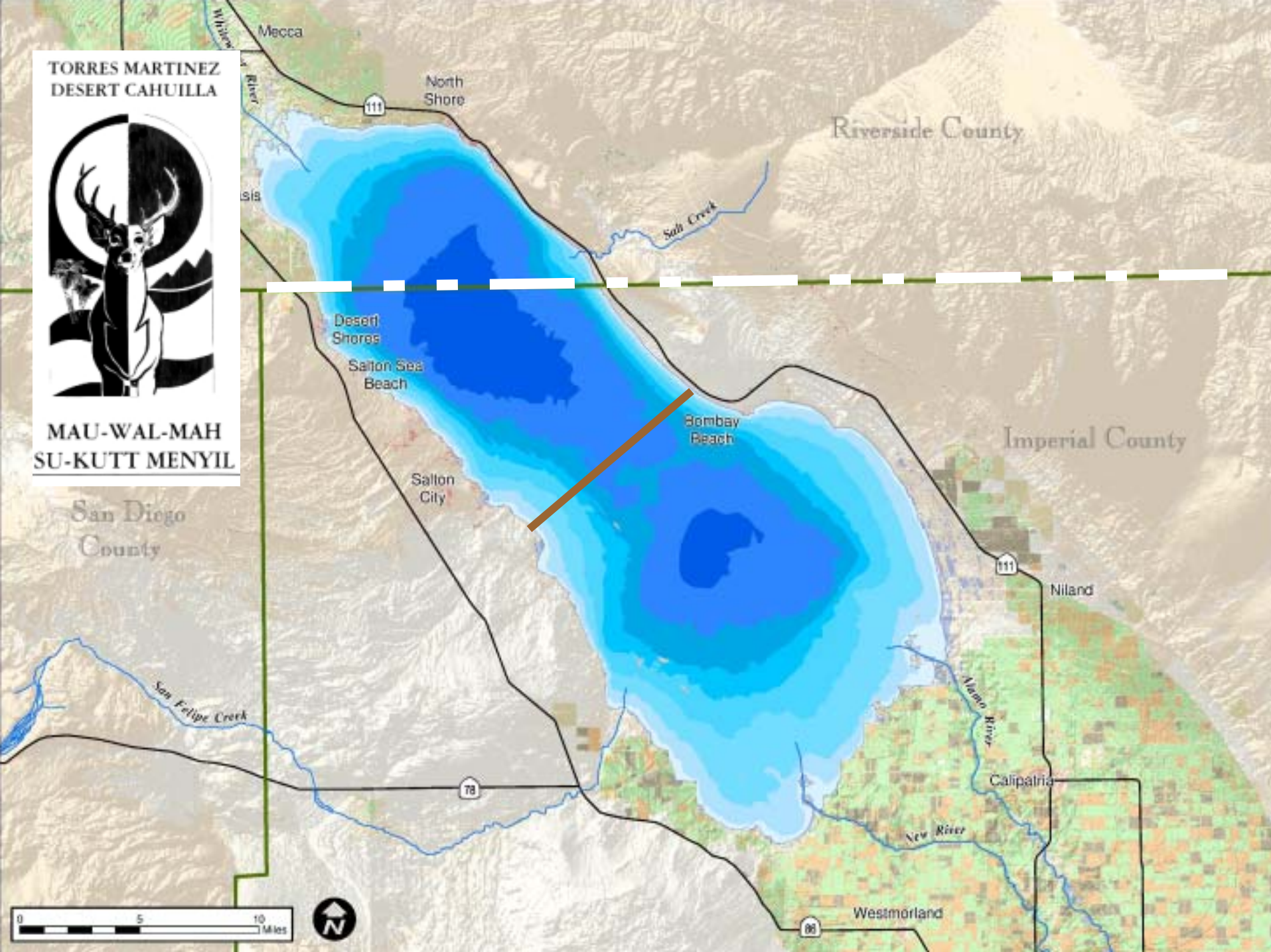


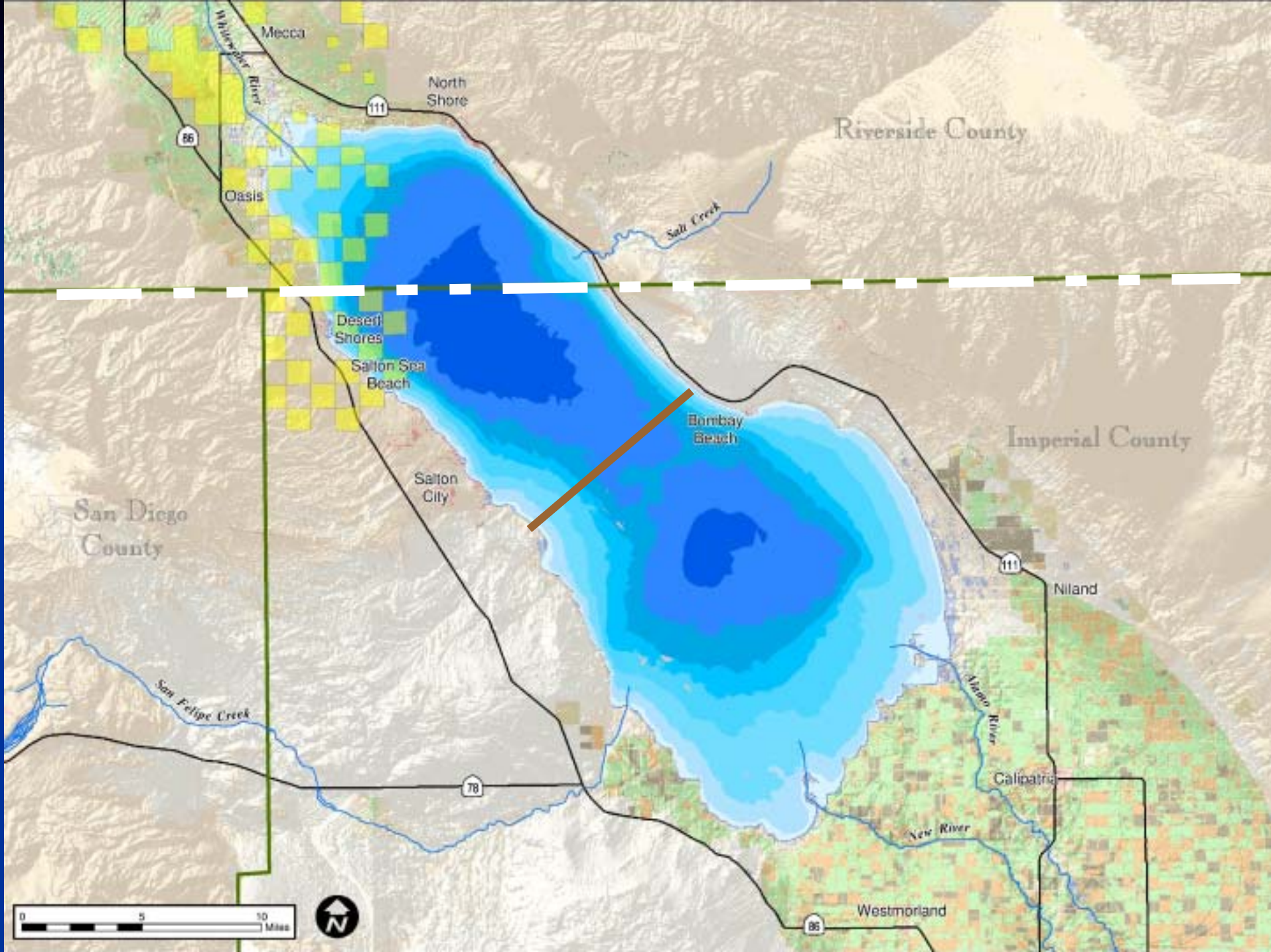
TORRES MARTINEZ
DESERT CAHUILLA



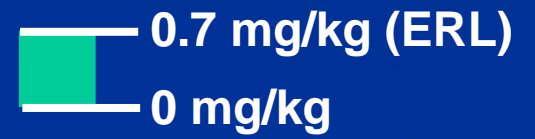
MAU-WAL-MAH
SU-KUTT MENYIL

San Diego
County

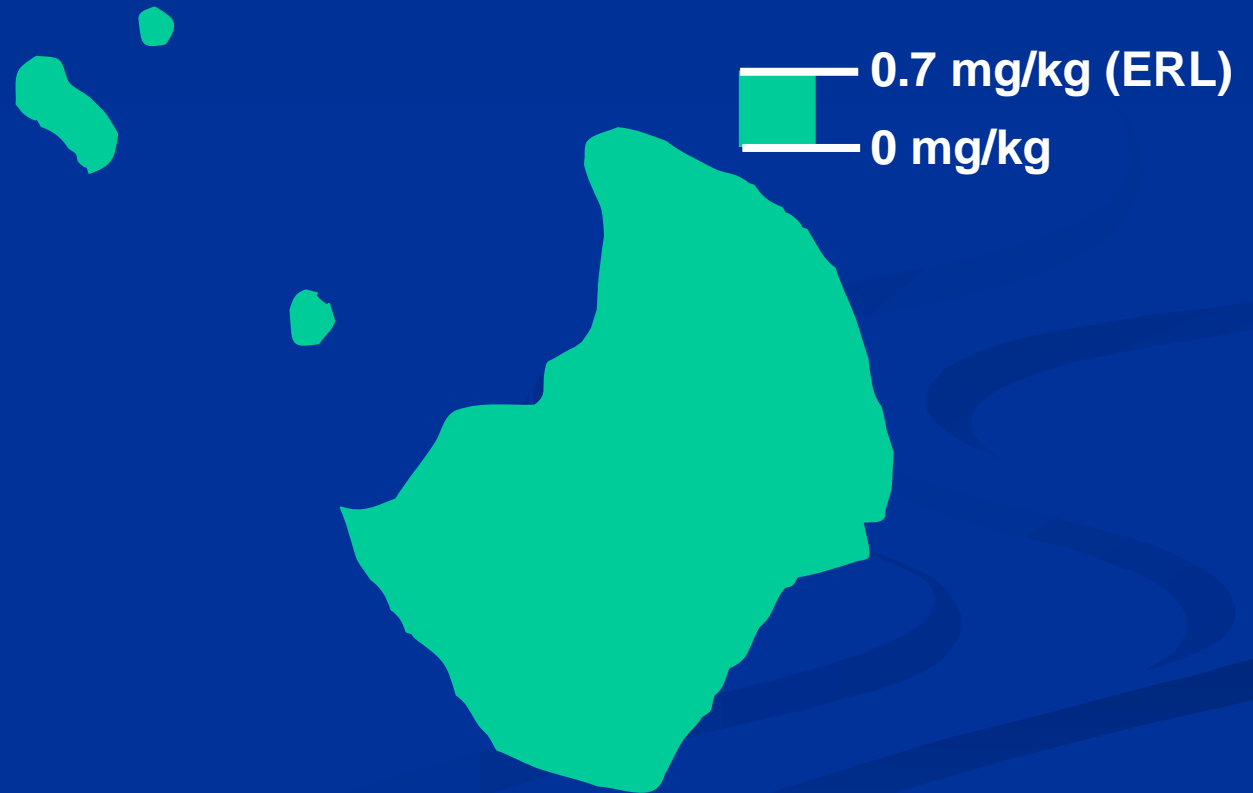




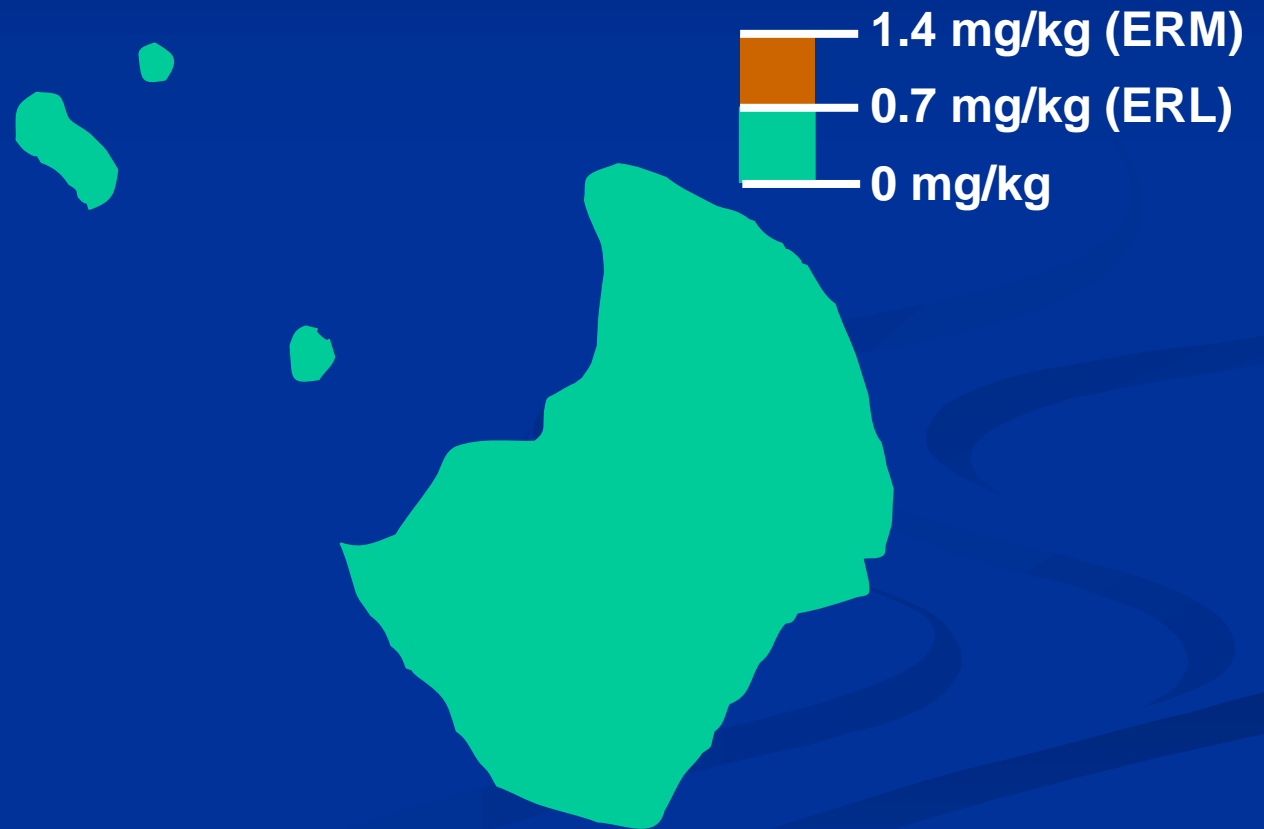
Selenium



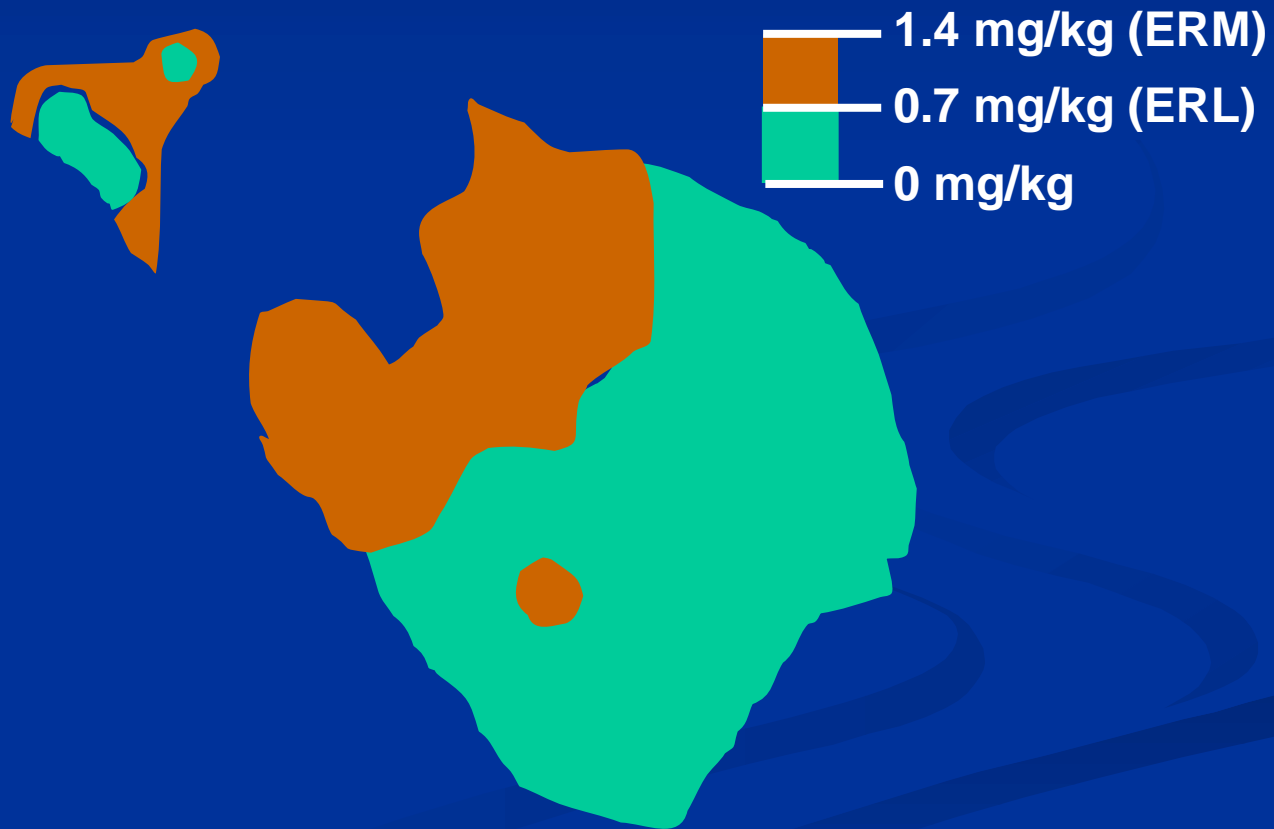
Selenium



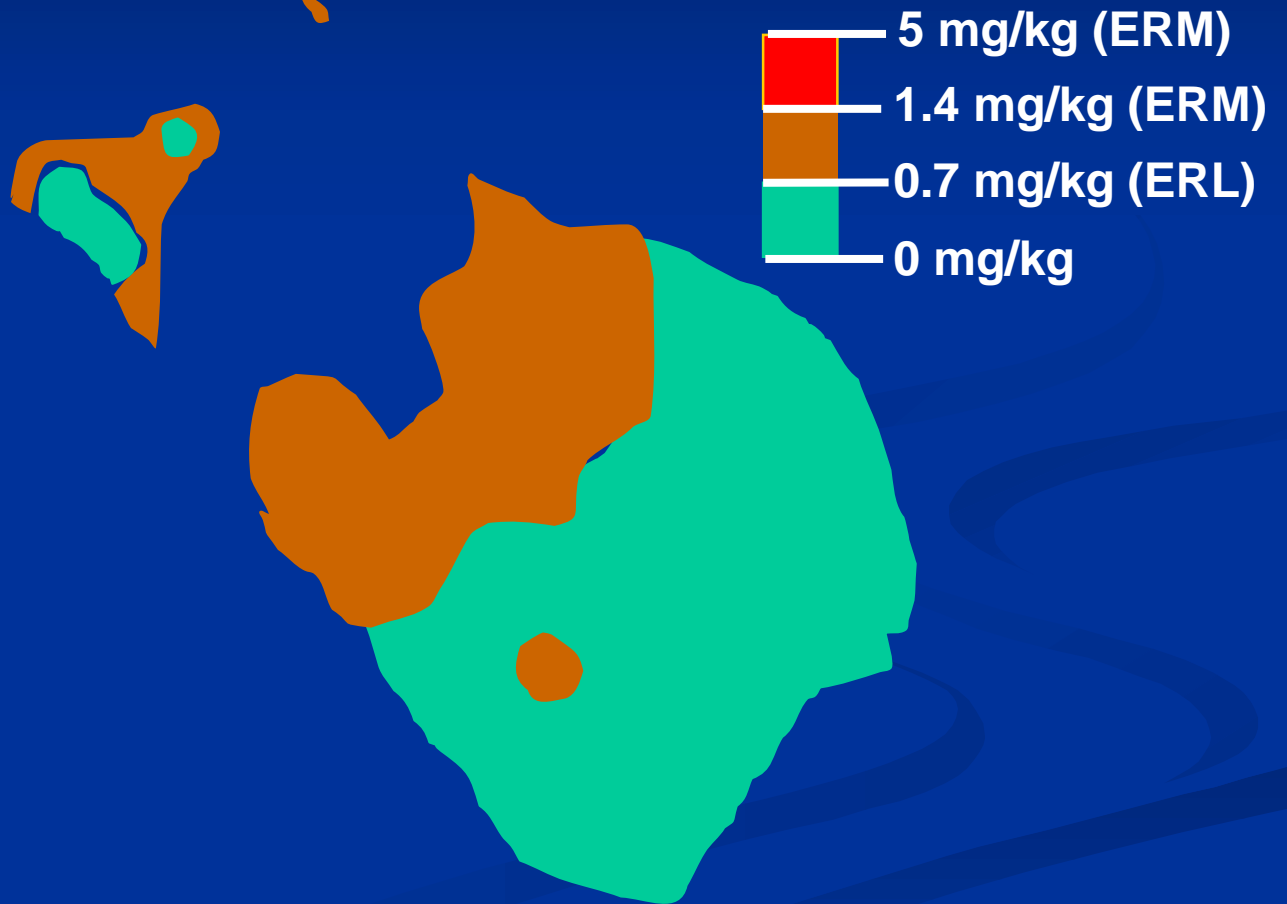
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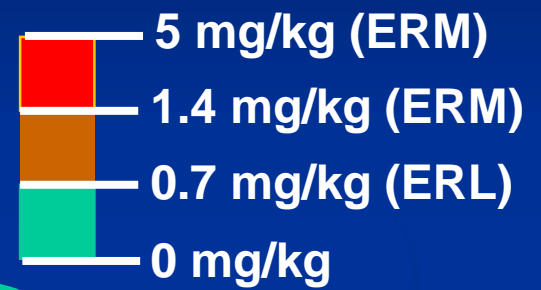
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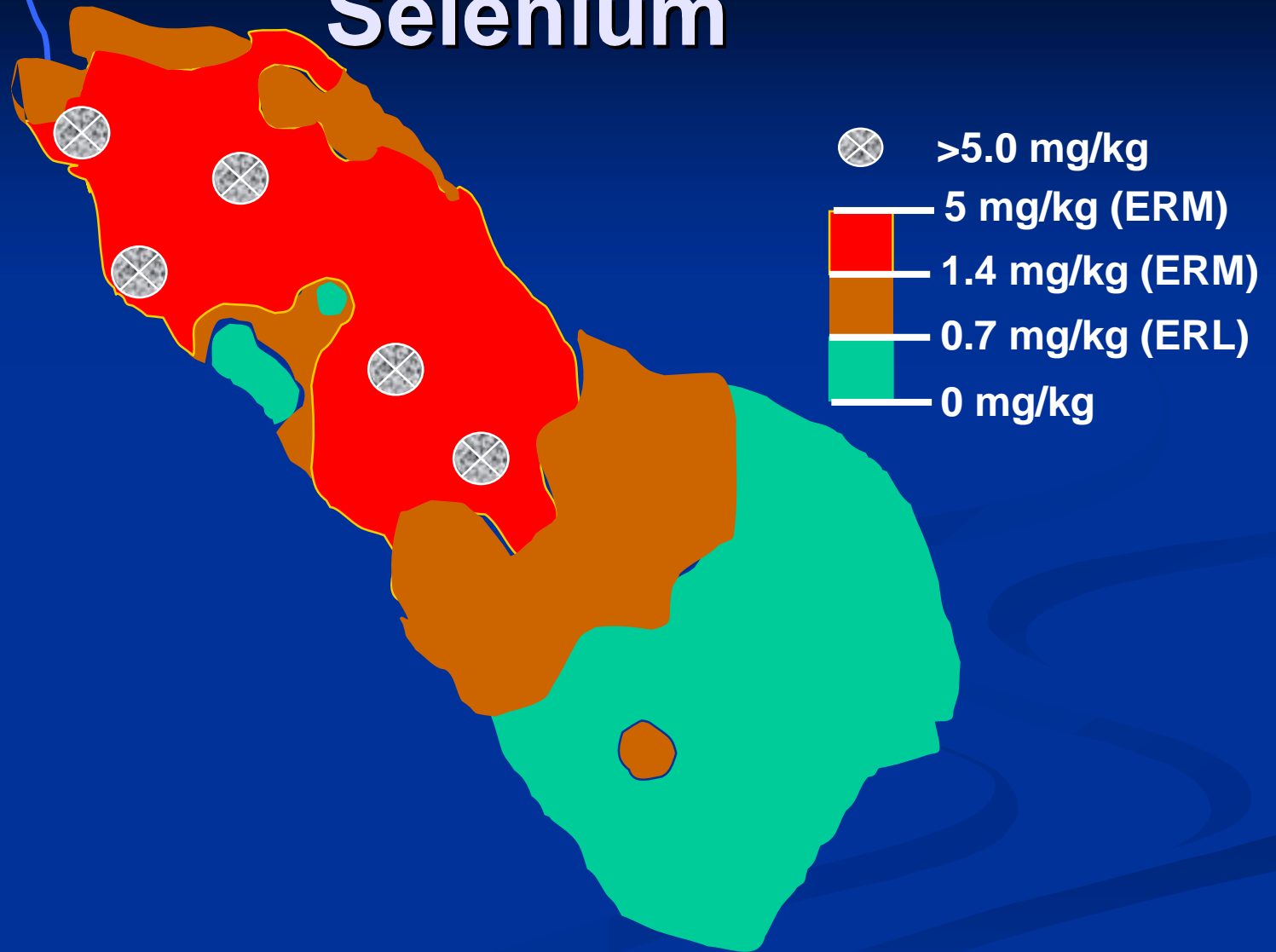
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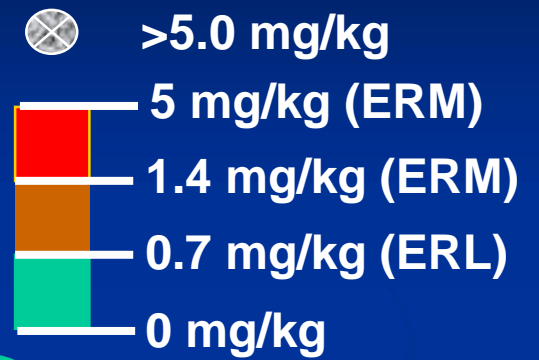
Selenium



Selenium



Selenium



The Concept



STATE PARK



VIEW POINTS



HUNTING / FISHING OPPORTUNITIES



RED HILL LAKE



ALAMO RIVER

- KEY FEATURES**
- The Main Lake**
 - 1,000 Acres
 - 1,000 Acres
 - Other Recreational Lakes**
 - 1,000 Acres
 - 1,000 Acres
 - Recreation**
 - Trail System
 - View Points
 - Hunting / Fishing Opportunities
 - Water / Access / Infrastructure**
 - 1,000 Acres
 - 1,000 Acres
 - Shallow Water / Wetlands**
 - 1,000 Acres
 - 1,000 Acres
 - Geothermal Expansion**
 - 1,000 Acres
 - 1,000 Acres
 - Other Opportunities**
 - 1,000 Acres
 - 1,000 Acres
 - Salt Pans**
 - 1,000 Acres
 - 1,000 Acres
 - Dred Canal**
 - 1,000 Acres
 - 1,000 Acres
 - Water Transfer / Dredging**
 - 1,000 Acres
 - 1,000 Acres



WHITEWATER RIVER WETLANDS



TRIBAL RESORT DEVELOPMENT



TRAIL SYSTEM



SHALLOW WATER HABITAT



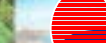
NEW ALAMO RIVER WETLANDS

Salton Sea

SCHEMATIC DESIGN CONCEPT

CALIFORNIA

A scenic view of a lake with mountains in the background and a small building on the shore. The image is framed by a dark border.

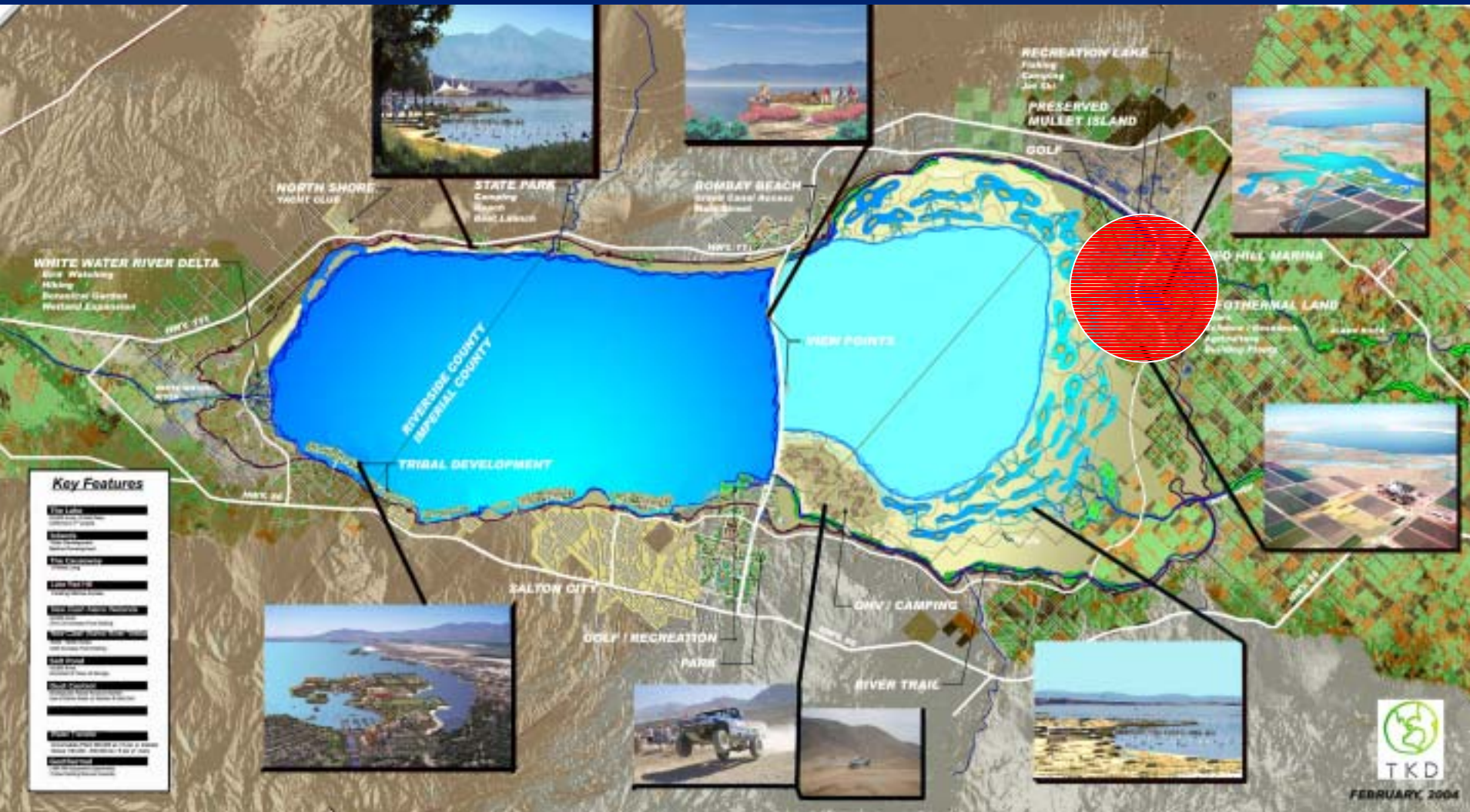
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FEBRUARY 2004





Recreation Lake



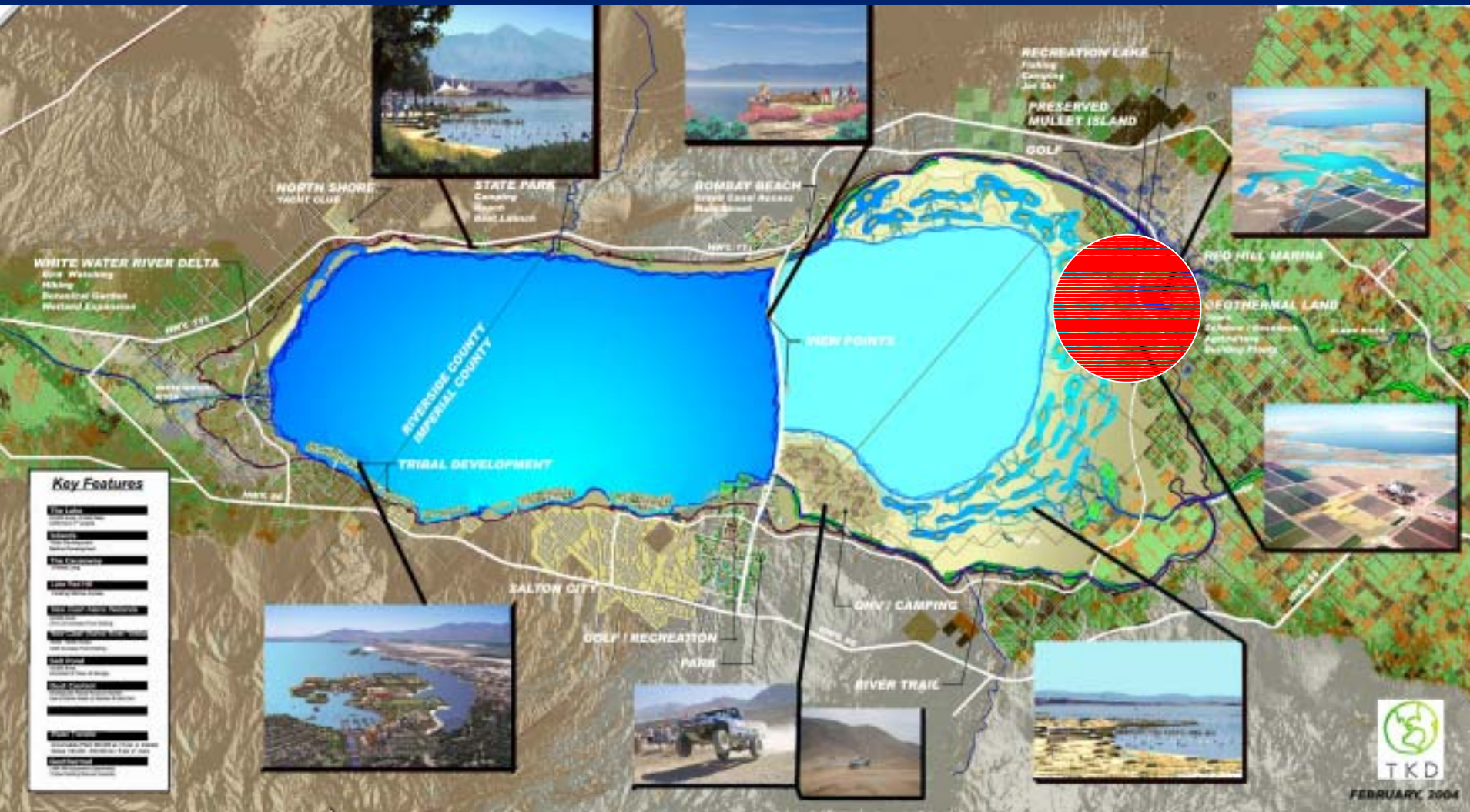
Lake Red Hill



Lake Red Hill



Geothermal Expansion

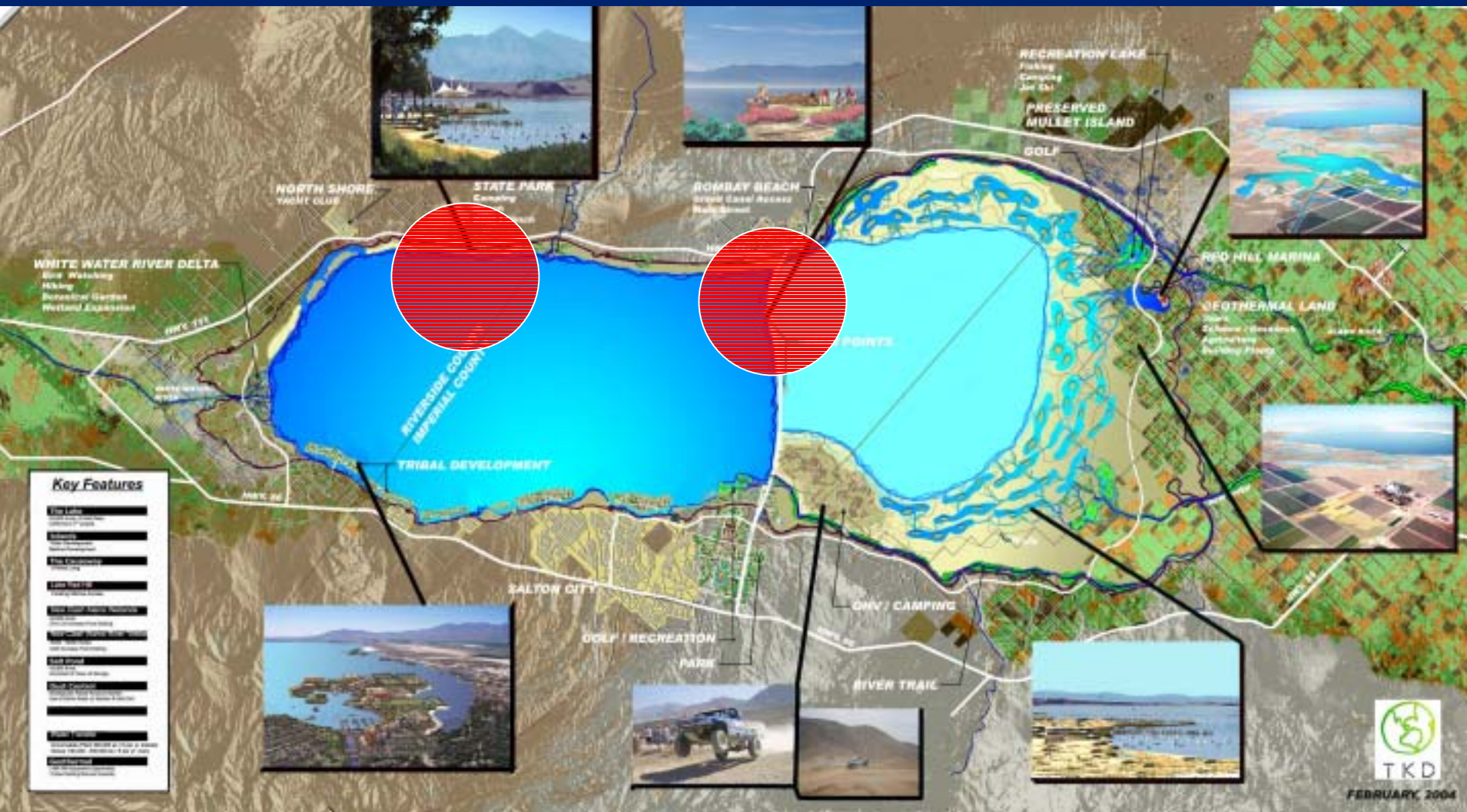




A scenic view of a lake with mountains in the background and a small building on the shore. The image is framed by a dark border.



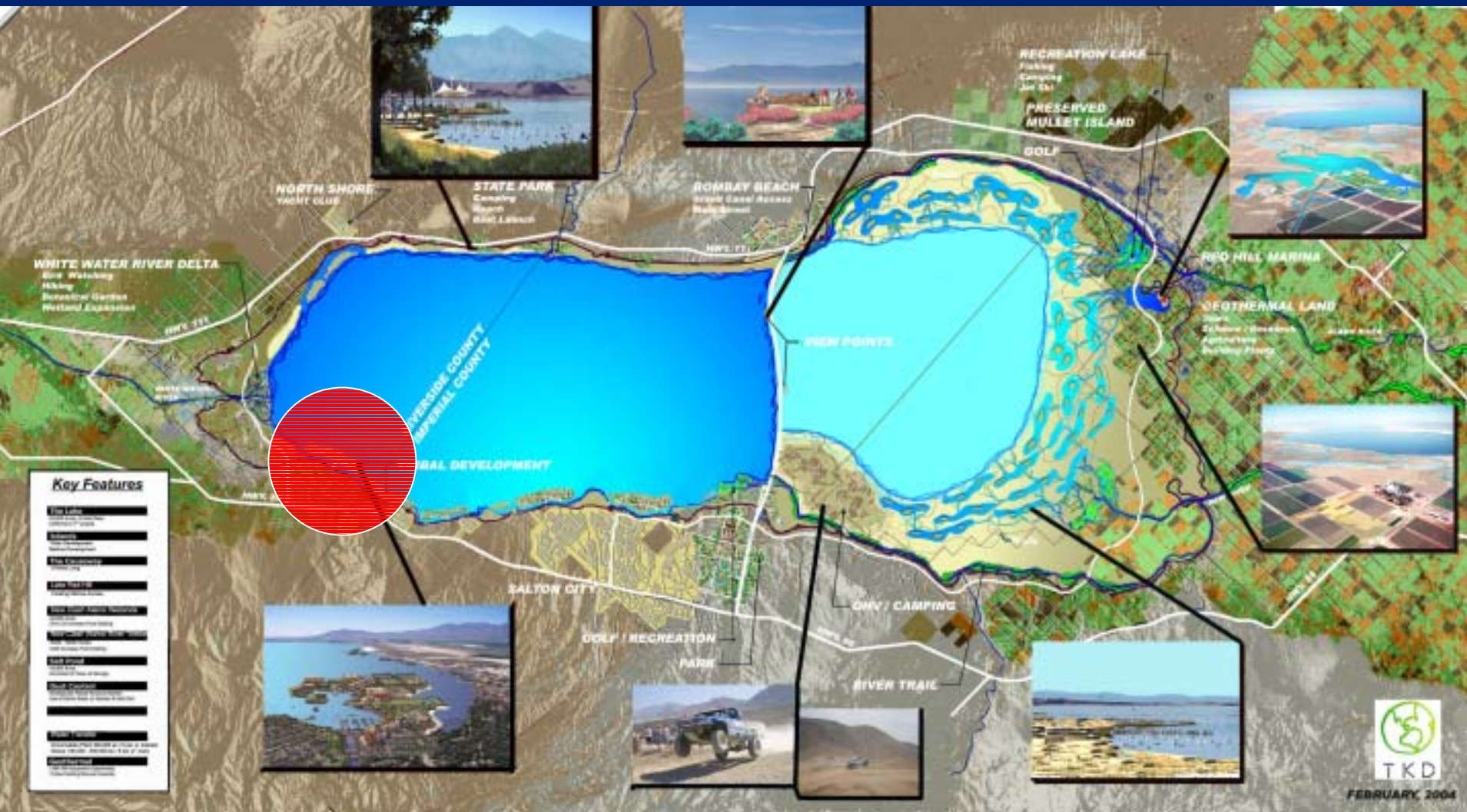
Park Views







Development









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How to Build Dikes in Difficult Conditions

- **Weak Foundation Soils**
- **Underwater Construction**
- **High Seismicity**

Geotechnical Investigation



Latest Engineering...

- **Yes, Difficult Conditions**
- **But, Done It Before**
 - Great Salt Lake Causeways
 - Pacific Rim Harbors & Reclamations

Technical Feasibility

- **Engineering Workshop**
- **Refined Previous Concepts**
- **Developed New Concepts**
- **Eliminated Concepts with Fatal Flaws: Dredged Fill Embankments**

Feasible Concepts

- **Conventional Dam Built in Dry**
- **Sheet Pile Cofferdams**
- **Rockfill Dams**
- **Precast Concrete Caissons**

Conceptual Designs

- **Benefits**

- Provides Separation of Waters/Levels
- Seismically Resilient
- Conventional Marine Construction

- **Drawbacks**

- Massive Material Requirements
- Difficult Site Conditions
- Unconventional for Dam Construction

Rockfill Concept

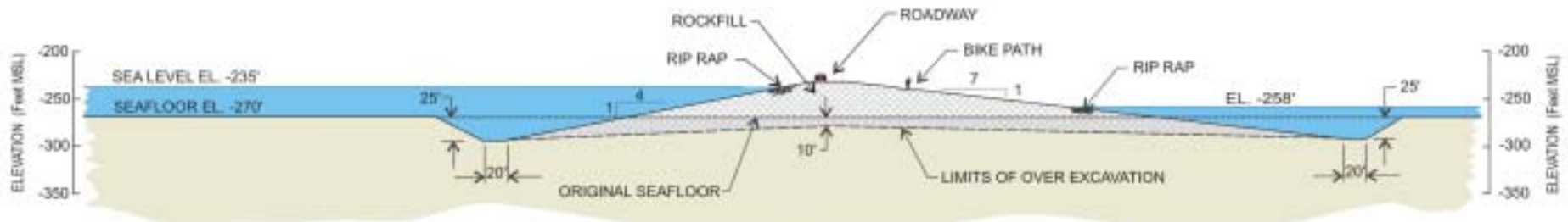
- **Benefits**

- Lowest Estimated Costs
- Precedence for Underwater Construction
- Low Seismic Deformation Potential

- **Drawbacks**

- Requires Large Quantity of Imported Rock
- Seepage Barrier will be Required

Rockfill Concept

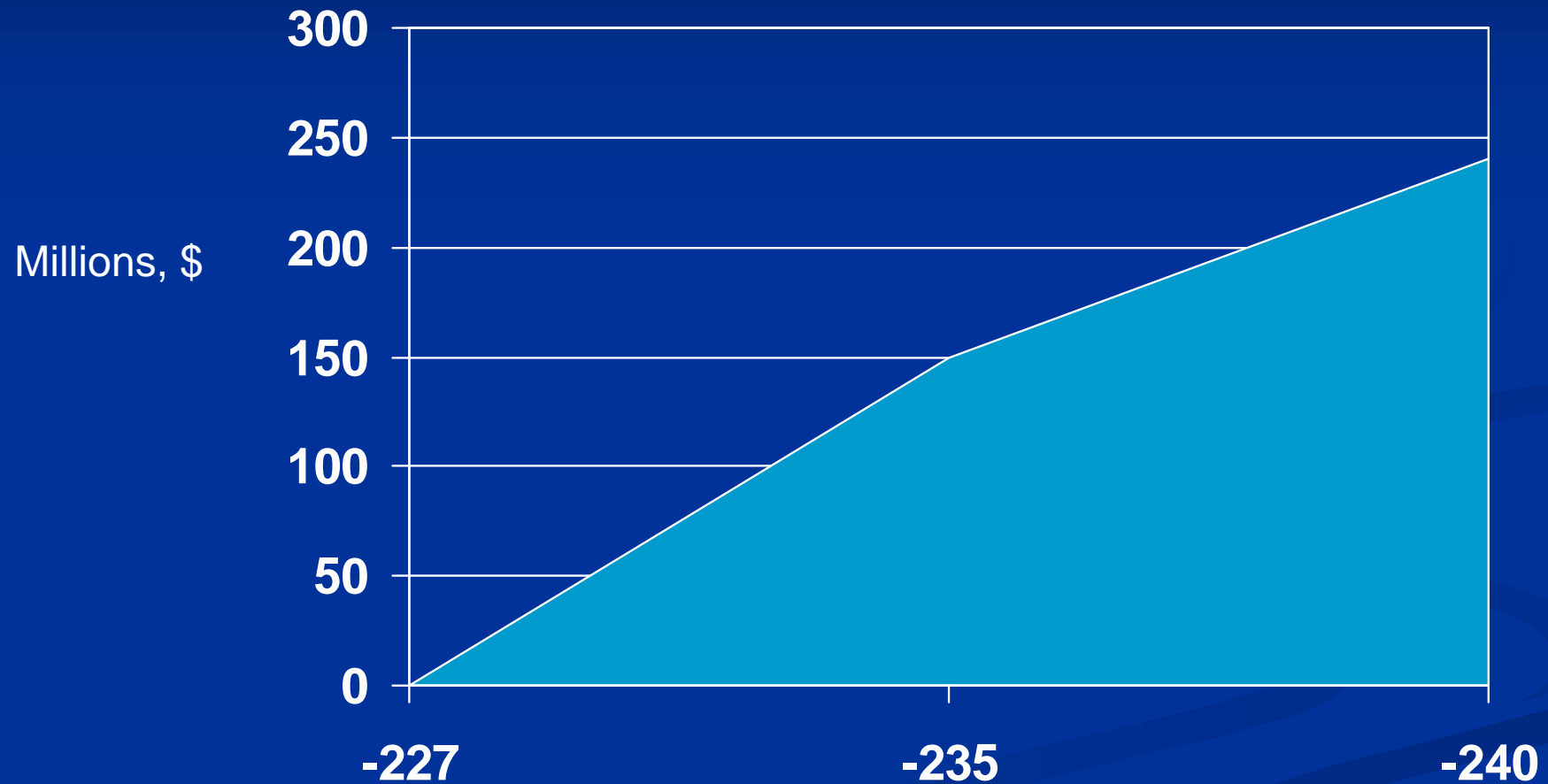


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Costs Sensitive to Elevation

Cost Savings vs. Elevation



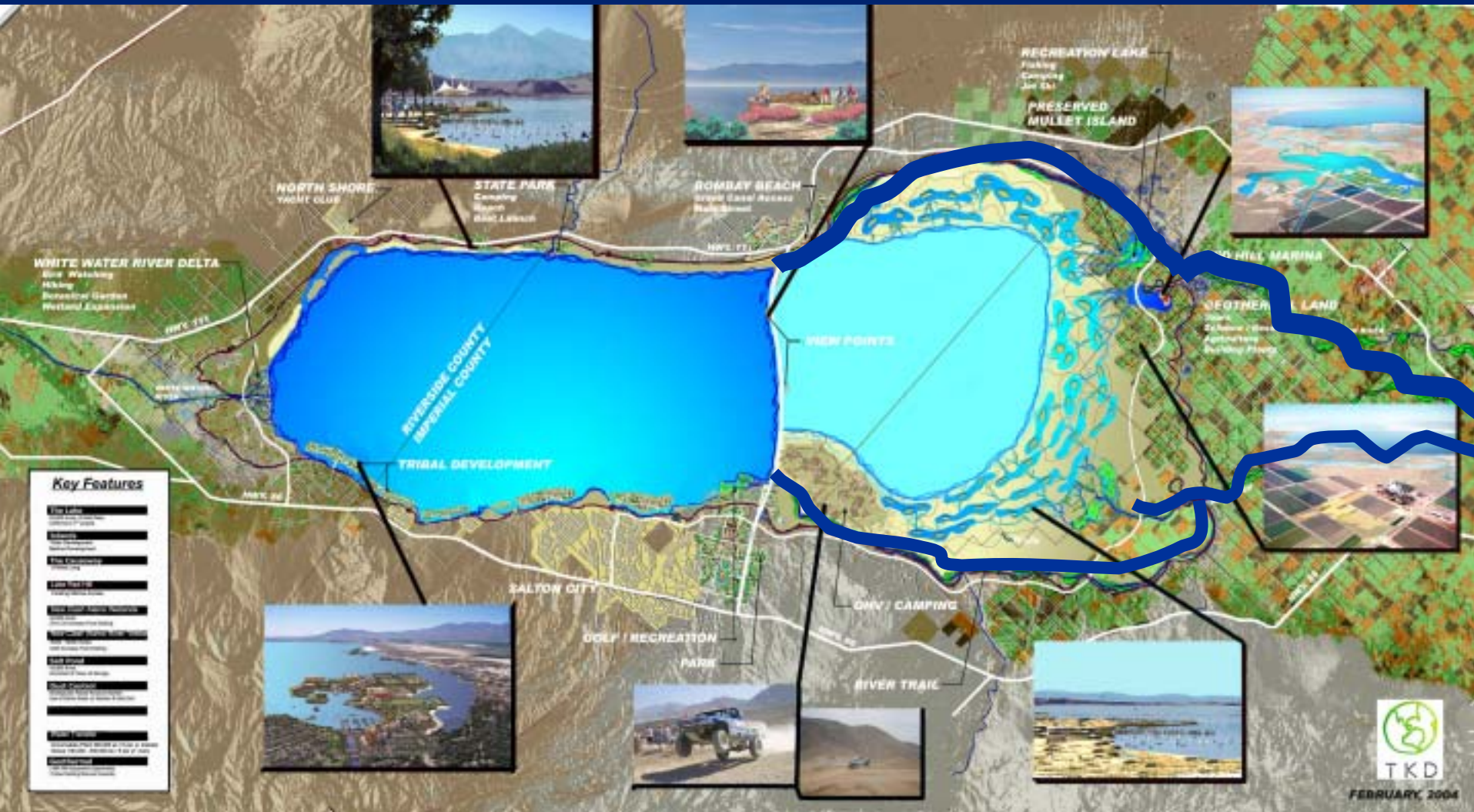
How Low to Go?



At Least to -235

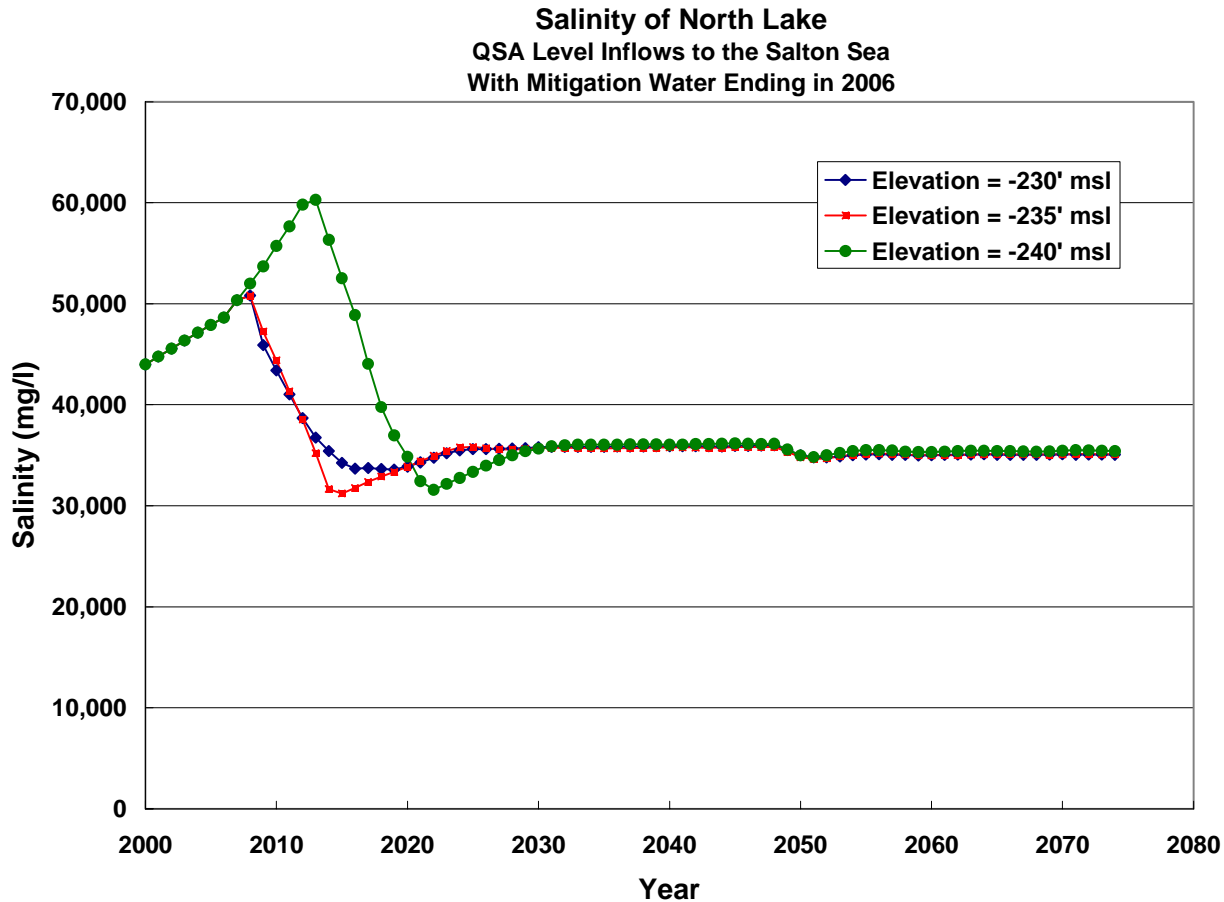
- **Early 1960's Level**

Get Water Flowing North



Lower?

Target Elevation



Target Elevation

■ At -235

- Salinity Doesn't Rise Past 50 ppt
- Achieve Targets w/i 10 years
- Save Over \$150M, Less Dredging

■ At -240

- Salinity Rises to 60 ppt
- Achieve Targets w/i 17 years
- Dike Costs Less, Dredging More

■ Any Lower (barriers) Challenging

Target Elevation

■ Proposing -235

- Basis for Cost Estimates
- But... Other Factors Could Suggest Fine-Tuning Later

Cost Summary

Construction Cost Estimate for Preferred Project (\$M)

<u>Item</u>	El=-235' msl
Mid-Sea Retention Structure/Causeway	527
Greenbelt Channels to North Lake	69
Recreational Features	51
Wetlands	78
Shallow Habitat Initial 2,000 ac	8
<u>Total Construction Costs</u>	<u>\$730</u>

O&M Cost Summary

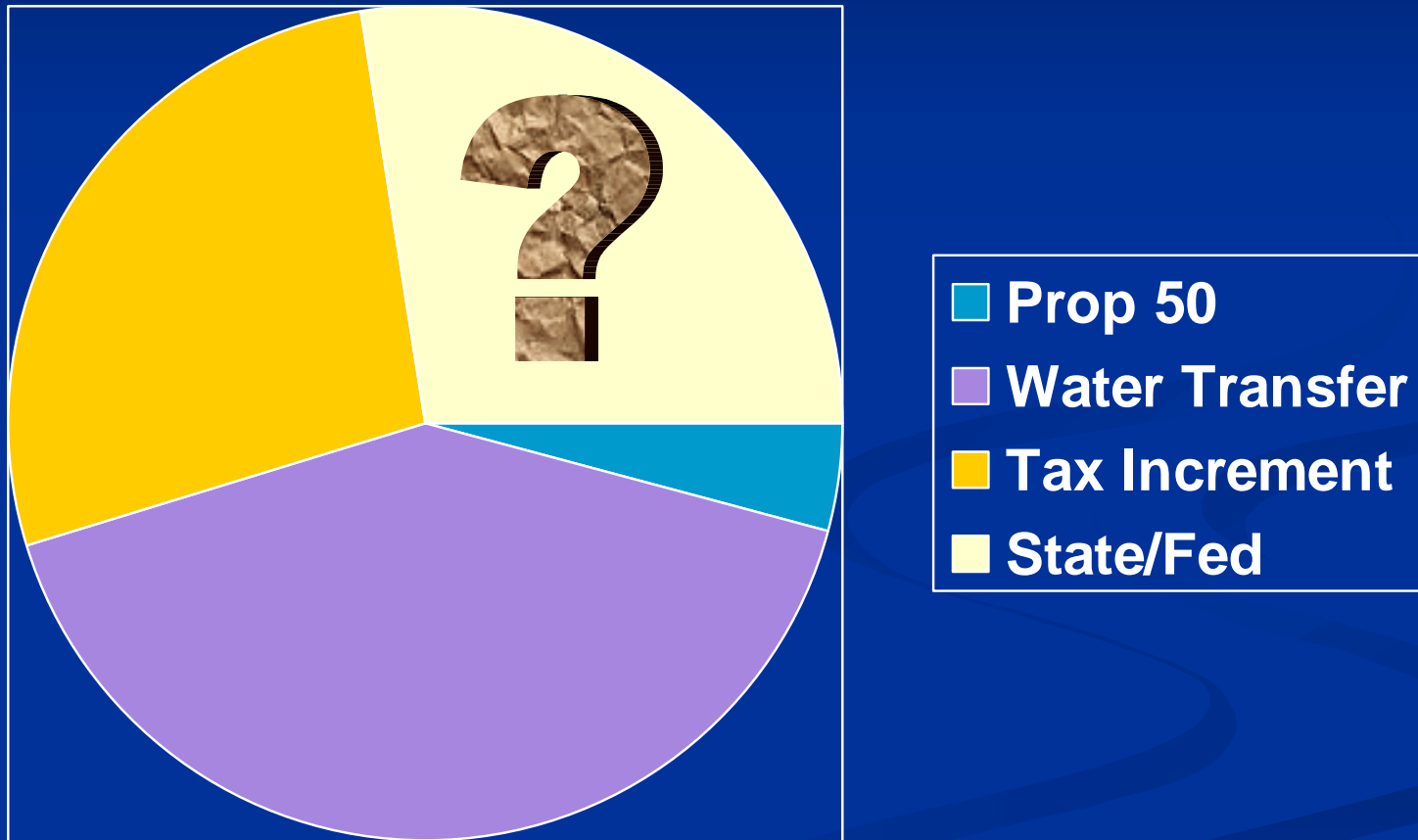
O&M Cost Estimate for Preferred Project (\$M/yr)

<u>Item</u>	El=-235' msl
Causeway O&M	5
Add Shallow Habitat (500-1,000 ac/yr)	2
Wetland O&M	1
<u>Total Annual O&M (\$M/yr)</u>	<u>\$8</u>

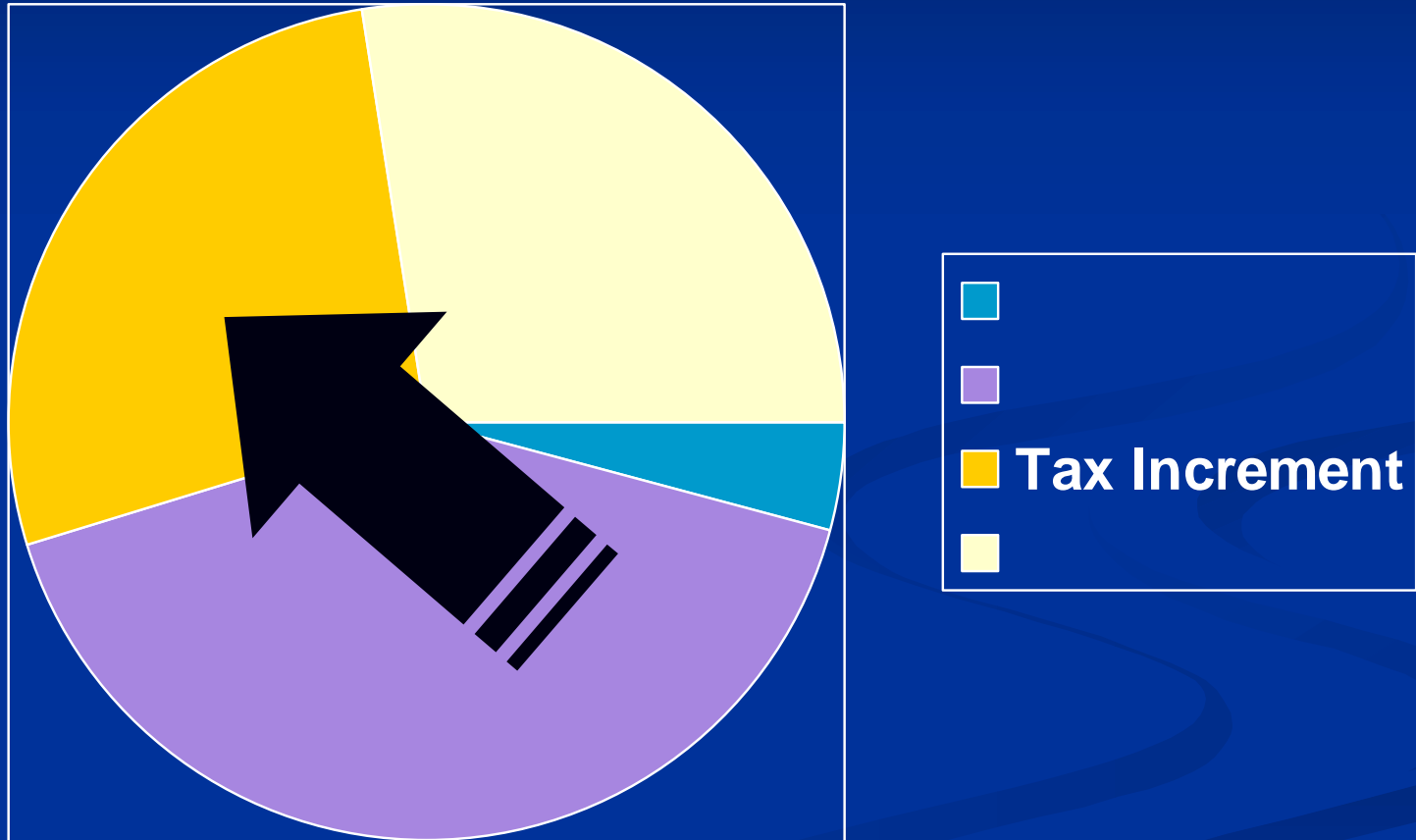
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Financing



Financing



SSA Tax Increment

- **Economic Task Force**
 - Led to State Legislation
 - Infrastructure Finance Districts
- **IFDs**
 - As Values Increase, so do Tax Receipts
 - “Voluntary”
 - No New Taxes
- **Latest**
 - SSA Increased Boundaries
- **Economic Development-Environmental Benefits**

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Salton Sea Restoration Proposed Phasing Plan

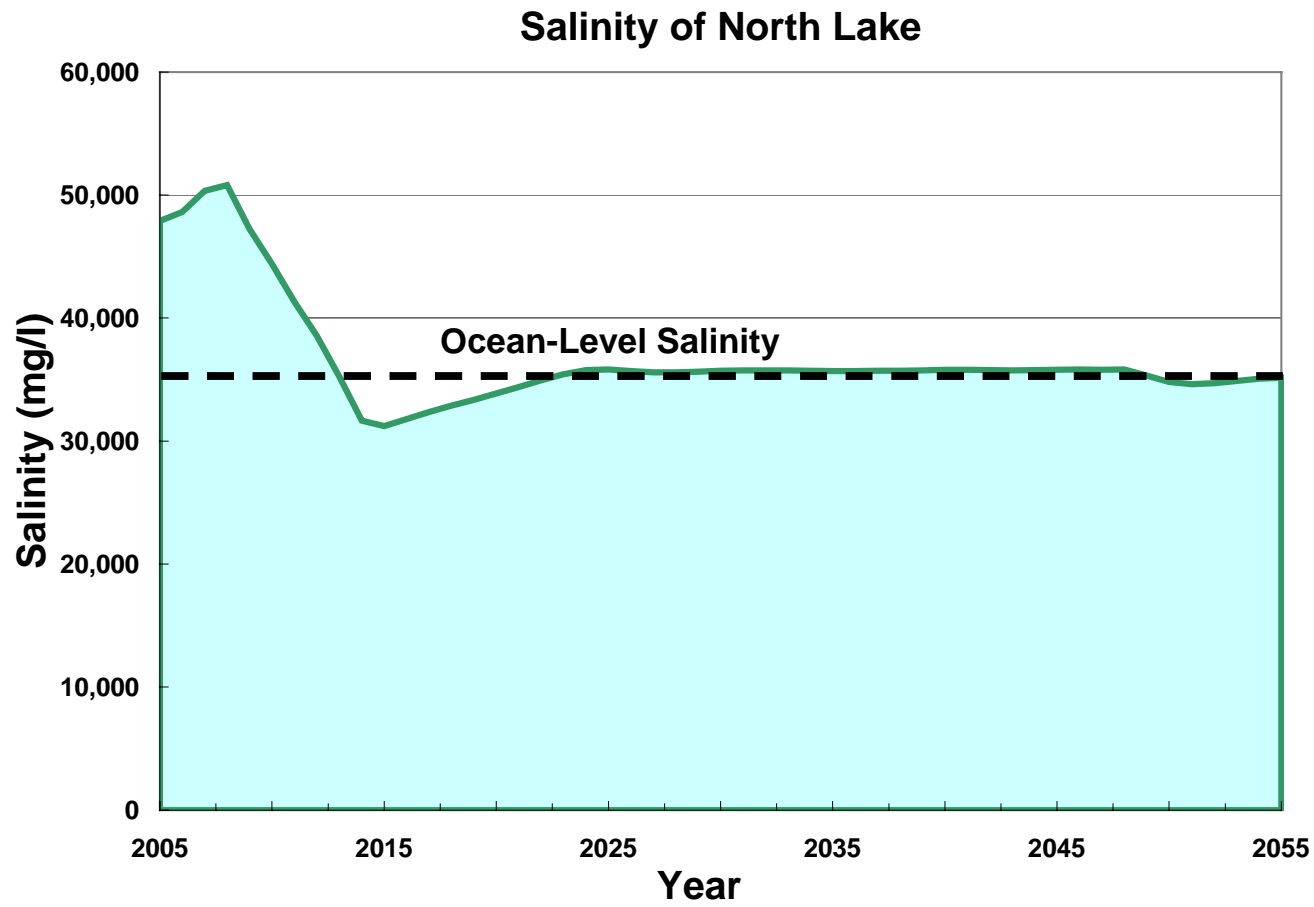


- 2004**
- Federal, State & Local (SSA) Agencies Pledge to Work Together on Restoration, Enter an MOU
 - State Advisory Committee Develops Criteria and Reviews Alternatives
 - Begin Detailed Design

- 2005**
- SSA Establishes Tax Increment District
 - Draft Project-Level Salton Sea Restoration EIR/EIS
 - Final Project-Level Salton Sea Restoration EIR/EIS

- 2006**
- Complete Detailed Design
 - Mitigation Water Sold

Target Salinity



PERFORMANCE

- **Nutrients Significantly Reduced**
 - Still Need to Model

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Input

- **Outdoor Recreation Task Force Input by June**
- **Other Input**
 - CVEP & IVEDC
 - Economic Benefits
- **Technical Reports, Next 30 Days**
 - Engineering, Shallow Water Workshop, Modeling

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- **MOU Between Feds, State, Local**
 - **Align Goals**
 - **Work Together**
- **Local Tax Increment**
 - **Negotiations This Summer**

Questions?